Amendment to the Claims

1. (Original) A method for sizing an aircraft system comprising:

selecting at least one design condition;

identifying at least one aircraft angle of attack;

selecting a spanwise lift coefficient distribution corresponding to the at least one design condition and the at least one aircraft angle of attack, the spanwise lift coefficient distribution extending over a spanwise portion of an airfoil, the spanwise portion including a plurality of spanwise locations and a leading edge device arrangement, the leading edge device arrangement having at least a portion of at least one leading edge device; and

determining a leading edge device chord length at each of the plurality of spanwise locations, such that when the airfoil is operated at the at least one design condition and the at least one aircraft angle of attack, the airfoil will provide at least approximately the selected spanwise lift coefficient distribution over the spanwise portion.

2. (Original) The method of claim 1, further comprising an aircraft, the airfoil being coupled to the aircraft.

3. (Original) The method of claim 1 wherein the at least one design condition includes at least one of a physical characteristic of an aircraft, a dynamic characteristic of the aircraft, and a characteristic of an environment in which the aircraft operates.

4. (Original) The method of claim 1, further comprising tapering a chord length of the leading edge device arrangement in approximately opposite spanwise directions, the taper in each direction varying the chord length in a manner that is at least approximately proportional to the manner in which the leading edge device chord length determined for each of the plurality of locations varies across the spanwise portion.

5. (Withdrawn) The method of claim 1, further comprising arranging a plurality of leading edge devices, each leading edge device having an approximately constant chord length, and wherein the plurality of leading edge devices are arranged such that the leading edge device chord length at each of the plurality of locations is at least approximately proportional to the leading edge device chord length determined for each of the plurality of locations.

6. (Cancelled)

7. (Cancelled)

8. (Withdrawn) The method of claim 6, further comprising:

selecting a plurality of leading edge devices, each having an approximately constant chord length; and

arranging the plurality of leading edge devices to create the tapered portions.

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Withdrawn) The method of claim 11, further comprising arranging a plurality of leading edge devices, each leading edge device having an approximately constant chord length, and wherein the plurality of leading edge devices have a

distribution of leading edge device chord lengths at least approximately proportional to the identified spanwise distribution of aircraft angles of attack

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Withdrawn) The method of claim 16, further comprising arranging a plurality of leading edge devices, each leading edge device having an approximately constant chord length, and wherein the plurality of leading edge devices are arranged such that the leading edge device chord length at each of the plurality of spanwise locations is at least approximately proportional to the sized leading edge device chord lengths at the plurality of spanwise locations.

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Withdrawn) The system of claim 23 wherein the leading edge device arrangement includes a plurality of leading edge devices, each leading edge device having an approximately constant chord length, and wherein the plurality of leading edge devices are arranged to create the taper of the leading edge chord length or chord length fraction in the first and second directions.

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Original) An aircraft system comprising:

an airfoil having a spanwise portion, the spanwise portion having a plurality of spanwise locations; and

a leading edge device arrangement coupled to the spanwise portion, the leading edge device arrangement including at least a portion of at least one leading edge device, wherein a leading edge device chord length at each of the plurality of spanwise locations is at least approximately equal to the smallest leading edge device chord length required to provide a local maximum lift coefficient when the airfoil is operated at at least one selected design condition and a selected aircraft angle of attack.

30. (Withdrawn) The system of claim 29 wherein the leading edge device arrangement includes a plurality of leading edge devices, each leading edge device having an approximately constant chord length, and wherein the plurality of leading edge devices are arranged to be at least approximately proportional to the smallest leading edge device chord length required to provide a local maximum lift coefficient at each of the plurality of spanwise locations when the airfoil is operated at the at least one selected design condition and the selected aircraft angle of attack.

31. (Original) The system of claim 29 wherein the leading edge device arrangement has at least two tapered portions, including:

a first tapered portion wherein the leading edge device chord length is tapered in a first spanwise direction; and

a second tapered portion wherein the leading edge device chord length is tapered in a second spanwise direction approximately opposite the first direction, the leading edge device chord length varying in a manner at

least approximately the same as the manner in which the approximately smallest leading edge device chord length required to provide the local maximum lift coefficient varies across the spanwise portion.

32. (Original) The system of claim 29, further comprising an aircraft, the airfoil being coupled to the aircraft.

33. (Original) The system of claim 29 wherein the at least one selected design condition includes at least one of a physical characteristic of an aircraft, a dynamic characteristic of the aircraft, and a characteristic of an environment in which the aircraft operates.

34. (Original) The system of claim 29 wherein the at least one leading edge device is deployable, having a retracted position and at least one extended position.

35. (Original) An aircraft system comprising:

an airfoil having a spanwise portion, the spanwise portion having a plurality of spanwise locations; and

leading edge high lift means for increasing airfoil performance at high aircraft angles of attack positioned proximate to the spanwise portion wherein a high lift means chord length at each of the plurality of spanwise locations is at least approximately proportional to an approximately smallest high lift means chord length required to provide a local maximum lift coefficient when the airfoil is operated at at least one selected design condition and a selected aircraft angle of attack.

36. (Original) The system of claim 35 wherein the leading edge high lift means includes at least one leading edge device having at least two tapered portions tapered in opposite spanwise directions.

37. (Original) The system of claim 35, further comprising an aircraft, the airfoil being coupled to the aircraft.

38. (Original) The system of claim 35 wherein the at least one selected design condition includes at least one of a physical characteristic of an aircraft, a dynamic characteristic of the aircraft, and a characteristic of an environment in which the aircraft operates.

39. (Original) An aircraft system comprising:

an airfoil having a spanwise portion, the spanwise portion having a plurality of spanwise locations; and

a leading edge device arrangement coupled to the spanwise portion, the leading edge device arrangement including at least a portion of at least one leading edge device, wherein a leading edge device chord length at each of the plurality of spanwise locations is at least approximately proportional to a leading edge device chord length at each location determined to provide a selected lift coefficient distribution when the airfoil is operated at at least one selected operating condition and at least one selected aircraft angle of attack.

40. (Withdrawn) The system of claim 39 wherein the leading edge device arrangement includes a plurality of leading edge devices, each leading edge device having an approximately constant chord length, and wherein the plurality of leading edge devices are arranged to be at least approximately proportional to the leading edge device chord length at each location determined to provide the selected lift coefficient distribution.

41. (Original) The system of claim 39 wherein the leading edge device arrangement has at least two tapered portions, including:

a first tapered portion wherein the leading edge device chord length is tapered in a first spanwise direction; and

a second tapered portion wherein the leading edge device chord length is tapered in a second spanwise direction approximately opposite the first direction, the leading edge device chord length varying in a manner at least approximately the same as the manner in which the leading edge

device chord length at each location determined to provide the selected lift coefficient distribution varies across the spanwise portion.

42. (Original) The system of claim 39, further comprising an aircraft, the airfoil being coupled to the aircraft.

43. (Original) The system of claim 39 wherein the at least one selected design condition includes at least one of a physical characteristic of an aircraft, a dynamic characteristic of the aircraft, and a characteristic of an environment in which the aircraft operates.

44. (Original) The system of claim 39 wherein the at least one leading edge device is deployable, having a retracted position and at least one extended position.

45. (Original) An aircraft system comprising:

an airfoil having a spanwise portion, the spanwise portion having a plurality of spanwise locations; and

a leading edge device arrangement coupled to the spanwise portion, the leading edge device arrangement including at least a portion of at least one leading edge device, wherein a leading edge device chord length at each of the plurality of spanwise locations is at least approximately proportional to a leading edge device chord length at each location determined to provide a distribution of aircraft angles of attack corresponding to local maximum lift coefficients when the airfoil is operated at at least one selected operating condition.

46. (Withdrawn) The system of claim 45 wherein the leading edge device arrangement includes a plurality of leading edge devices, each leading edge device having an approximately constant chord length, and wherein the plurality of leading edge devices have a combined distribution of chord lengths at least approximately proportional to the determined leading edge device chord lengths at each spanwise location.

47. (Original) The system of claim 45 wherein the leading edge device arrangement has at least two tapered portions, including:

a first tapered portion wherein the leading edge device chord length is tapered in a first spanwise direction; and

a second tapered portion wherein the leading edge device chord length is tapered in a second spanwise direction approximately opposite the first spanwise direction, the first and second portions having a combined distribution of chord lengths at least approximately the same as the determined leading edge device chord lengths.

48. (Original) The system of claim 45, further comprising an aircraft, the airfoil being coupled to the aircraft.

49. (Original) The system of claim 45 wherein the at least one selected design condition includes at least one of a physical characteristic of an aircraft, a dynamic characteristic of the aircraft, and a characteristic of an environment in which the aircraft operates.

50. (Original) The system of claim 45 wherein the at least one leading edge device is deployable, having a retracted position and at least one extended position.